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Ann E. Summerfield
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Aric W. Ledford*
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Mita Mukherjee
Scott M. Woodhouse

Of Counsel
Kenneth C. Bass III
Evan R. Smith
Marvin C. Guthrie

*Admitted only in Maryland
*Admitted only in Virginia
*Practice Limited to
Federal Agencies

March 18, 2004

WRITER'S DIRECT NUMBER:
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Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Art Unit 2827

Re: U.S. Utility Patent Application
Application No. 09/997,272; Filed: November 30, 2001
For: **Thermally And Electrically Enhanced Ball Grid Array Packaging**
Inventors: Zhao *et al.*
Our Ref: 1875.2200001

Sir:

Transmitted herewith for appropriate action are the following documents:

1. Fee Transmittal (Form PTO/SB/17);
2. Fifth Supplemental Information Disclosure Statement;
3. Form PTO-1449 listing and accompanied by forty-three (43) documents;
4. Credit Card Payment Form (PTO-2038); and
5. One return postcard.

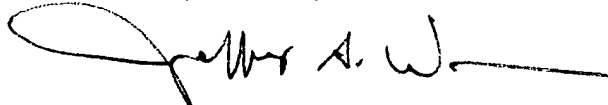
It is respectfully requested that the attached postcard be stamped with the date of filing of these documents, and that it be returned to our courier. In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

Commissioner for Patents
March 18, 2004
Page 2

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

A handwritten signature in black ink, appearing to read "Jeffrey S. Weaver", with a long horizontal stroke extending to the right.

Jeffrey S. Weaver
Attorney for Applicants
Registration No. 45,608

JSW/sjc
241531_1.DOC



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 180.00

Complete if Known

Application Number 09/997,272
Filing Date November 30, 2001
First Named Inventor Sam Z. Zhao
Examiner Name Zarneke, David A.
Art Unit 2827
Attorney Docket No. 1875.2200001

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit card ☐ Money Order ☒ Other** ☐ None

☐ **Charge any deficiencies or credit any overpayments in Deposit Account: the fees to Deposit Acct. No. 19-0036

Deposit Account Number
Deposit Account Name

19-0036

Sterne Kessler, Goldstein & Fox P.L.L.C.

The Director is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	20 **=	X	
Multiple Dependent	3 **=	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	\$180.00
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 180.00

SUBMITTED BY

Name (Print/Type)	Jeffrey S. Weaver	Registration No. (Attorney/Agent)	45,608	Telephone	(202) 371-2600
Signature		Date	3-18-04		

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Zhao *et al.*

Appl. No.: 09/997,272

Filed: November 30, 2001

For: **Thermally And Electrically
Enhanced Ball Grid Array
Packaging**

Confirmation No.: 2600

Art Unit: 2827

Examiner: Zarneke, D.

Atty. Docket: 1875.2200001

Fifth Supplemental Information Disclosure Statement

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO-1449 are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicants have checked the appropriate boxes below.

- ☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.
- ☐ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.
- ☒ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
- ☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).
- ☒ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of \$180.00 in payment of the fee under 37 C.F.R. § 1.17(p).
- ☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of \$_____ in payment of the fee under 37 C.F.R. § 1.17(p); in addition:
- ☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign

application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☒ 5. Documents AL1 and AM1 were cited in a search report by a foreign patent office in a foreign application. Submission of an English language version of the search report (document AR1) that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. 1138 OG 37, 38. Also note that U.S. Patent No. 6,184,580, which was previously cited in an Information Disclosure Statement on August 28, 2002, corresponds to document AL1.

☐ 6. A concise explanation of the relevance of the non-English language document(s) appears below:

☒ 7. Copies of the documents are submitted herewith.

☐ 8. Copies of the documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No. _____, filed

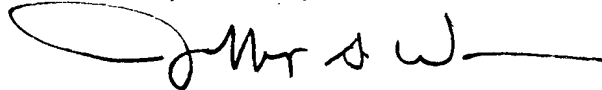
_____, which is relied upon for an earlier filing date under 35 U.S.C. §
120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the
enclosed PTO-1449, and indicate in the official file wrapper of this patent application
that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee
deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

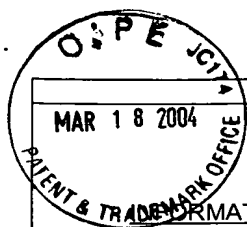
A handwritten signature in black ink, appearing to read "Jeffrey S. Weaver", with a long horizontal line extending to the right.

Jeffrey S. Weaver
Attorney for Applicants
Registration No. 45,608

Date: 3-18-04

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Washington, D.C. 20005-3934
(202) 371-2600

241537_1.DOC



MAR 18 2004

FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.

1875.2200001

APPLICATION NO.

09/997,272

FIRST NAMED INVENTOR

Sam Z. Zhao

FILING DATE

November 30, 2001

ART UNIT

2827

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	4,611,238	09/1986	Lewis <i>et al.</i>			07/1985
	AB1	5,065,281	11/1991	Hernandez <i>et al.</i>			02/1990
	AC1	5,173,766	12/1992	Long <i>et al.</i>			06/1990
	AD1	5,208,504	05/1993	Parker <i>et al.</i>			12/1990
	AE1	5,216,278	06/1993	Lin <i>et al.</i>			03/1992
	AF1	5,294,826	03/1994	Marcantonio <i>et al.</i>			04/1993
	AG1	5,366,589	11/1994	Chang			11/1993
	AH1	5,394,009	02/1995	Loo			07/1993
	AI1	5,409,865	04/1995	Karnazos			02/1994
	AJ1	5,433,631	07/1995	Beaman <i>et al.</i>			06/1994
	AK1	5,541,450	07/1996	Jones <i>et al.</i>			11/1994

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL1	Patent Publ. No. 417,219	1/1/2001	Taiwan			Yes No
	AM1	Patent Publ. No. 383,908	3/1/2000	Taiwan			Yes No
	AN1	11-102989	04/13/1999	Japan			Yes No
	AO1	10-247702	09/14/1998	Japan			Yes No
	AP1						Yes No

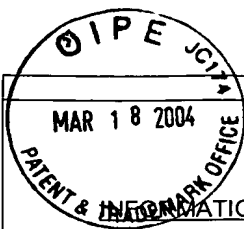
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	1	Copy of Written Primary Examination Decision of Rejection issued by the Taiwan Patent Office (with English translation attached) 5 pages.
	AS	1	
	AT	1	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.



FORM PTO-1449

ATTY. DOCKET NO.
1875.2200001

APPLICATION NO.
09/997,272

FIRST NAMED INVENTOR
Sam Z. Zhao

FILING DATE
November 30, 2001

ART UNIT
2827

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA2	5,552,635	09/1996	Kim <i>et al.</i>			01/1995
	AB2	5,650,659	07/1997	Mostafazadeh <i>et al.</i>			08/1995
	AC2	5,717,252	02/1998	Nakashima <i>et al.</i>			12/1996
	AD2	5,856,911	01/1999	Riley			11/1996
	AE2	5,866,949	02/1999	Schueller			10/1997
	AF2	5,907,903	06/1999	Ameen <i>et al.</i>			01/1998
	AG2	5,949,137	09/1999	Domadia <i>et al.</i>			09/1997
	AH2	5,977,626	11/1999	Wang <i>et al.</i>			08/1998
	AI2	5,986,340	11/1999	Mostafazadeh <i>et al.</i>			05/1996
	AJ2	6,011,694	01/2000	Hirakawa			08/1997
	AK2	6,084,297	07/2000	Brooks <i>et al.</i>			09/1998

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL2						Yes No
	AM2						Yes No
	AN2						Yes No
	AO2						Yes No
	AP2						Yes No

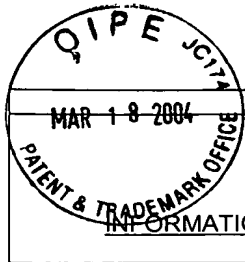
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	2	
	AS	2	
	AT	2	

EXAMINER

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MAR 18 2004

FORM PTO-1449

INFORMATION DISCLOSURE STATEMENT

Page 3 of 4

ATTY. DOCKET NO.
1875.2200001APPLICATION NO.
09/997,272FIRST NAMED INVENTOR
Sam Z. ZhaoFILING DATE
November 30, 2001ART UNIT
2827

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA3	6,201,300 B1	03/2001	Tseng <i>et al.</i>			08/1998
	AB3	6,246,111 B1	06/2001	Huang <i>et al.</i>			01/2000
	AC3	6,288,444 B1	09/2001	Abe <i>et al.</i>			06/1999
	AD3	6,313,521 B1	11/2001	Baba			11/1999
	AE3	6,369,455 B1	04/2002	Ho <i>et al.</i>			04/2000
	AF3	6,462,274 B1	10/2002	Shim <i>et al.</i>			10/1999
	AG3	6,472,741 B1	10/2002	Chen <i>et al.</i>			07/2001
	AH3	6,525,942 B2	02/2003	Huang <i>et al.</i>			05/2001
	AI3	6,528,892 B2	03/2003	Caletka <i>et al.</i>			06/2001
	AJ3	6,541,832 B2	04/2003	Coyle			01/2001
	AK3	6,545,351 B1	04/2003	Jamieson <i>et al.</i>			03/2000

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL3						Yes No
	AM3						Yes No
	AN3						Yes No
	AO3						Yes No
	AP3						Yes No

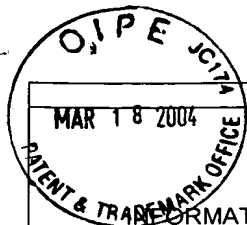
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AR	<u>3</u>	
	AS	<u>3</u>	
	AT	<u>3</u>	

EXAMINER

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FORM PTO-1449

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November 30, 2001

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA4	6,552,428 B1	04/2003	Huang <i>et al.</i>			10/1999
	AB4	6,552,430 B1	04/2003	Perez <i>et al.</i>			01/2002
	AC4	6,563,712 B2	05/2003	Akram <i>et al.</i>			05/2002
	AD4	6,583,516 B2	06/2003	Hashimoto			11/2001
	AE4	2003/0138613 A1	07/2003	Thoman <i>et al.</i>			01/2002
	AF4						
	AG4						
	AH4						
	AI4						
	AJ4						
	AK4						

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AL4						Yes No
	AM4						Yes No
	AN4						Yes No
	AO4						Yes No
	AP4						Yes No

OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

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	AT	4	

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